

---

**Products of Polynomials**

---

$$(x - 2)(x^2 - x + 4) = x(x^2 - x + 4) - 2(x^2 - x + 4) = x^3 - x^2 + 4x - 2x^2 + 2x - 8 \\ = x^3 - 3x^2 + 6x - 8$$

Use the distributive property to multiply these polynomials.

1.  $(5x + 3)(x + 6)$

11.  $-3x^2(4x^2 - 3x + 3)$

2.  $(4x + y)(3x - 2y)$

12.  $5b(4b^3 - 6b^2 - 6)$

3.  $(4a + 1)(4a + 1)$

13.  $x^2(x^3 + x^2 + x)$

4.  $(x + 4)(x + 4)$

14.  $(3x^4 - 5x^2 - 4)(-3x^3)$

5.  $(x + y)(3x + y)$

15.  $(x - y)(x^2 + y^2)$

6.  $(x + 1)(1 + x)$

16.  $(4x + 3)(2x - 4)$

7.  $(2b - 8)(3b - 7)$

17.  $(3b - 2)(3b^3 + 6b^2 + 2)$

8.  $(3x + y)(x^2 + 3x + 4y)$

18.  $(3x - 3)(x - 9)$

9.  $(4x^2 - 4y^2)(4x^2 + 4y^2)$

19.  $(-2x^3 + 4)(2x^2 + 5)$

10.  $(3x^2 - x)(3x - x^2)$

20.  $(x - 7)(x + 6)$



# Polynomials

## Multiplying Polynomials

$$\begin{aligned}(s-2)(s^2-s+3) &= s(s^2-s+3) - 2(s^2-s+3) \\ &= s \cdot s^2 - s \cdot s + s \cdot 3 - 2 \cdot s^2 - 2(-s) - 2 \cdot 3 \\ &= s^3 - s^2 + 3s - 2s^2 + 2s - 6 \\ &= s^3 - 3s^2 + 5s - 6\end{aligned}$$

1.  $(z-3)(z+3)$

10.  $(h+k)(h^2-2hk+3k^2)$

2.  $(3t-2)(t-3)$

11.  $(2x-1)(x^2+x+3)$

3.  $(a+5)(a+5)$

12.  $(x^3+3x^2+2x-1)(x-1)$

4.  $(a+b)(2x+y)$

13.  $(n-m)(n^2+m^2)$

5.  $(\frac{1}{2}x-y)(2x+y)$

14.  $(y+1)(y^2-2y+2)$

6.  $(x-9)(x-2)$

15.  $(x+2y)(2x+3y)$

7.  $(2x+4)(x+3)$

16.  $(6x-y)(3x-2y)$

8.  $(3x+2)(2x+5)$

17.  $(4x+y)(3x-4y)$

9.  $(4x-9)(3x+1)$

18.  $(5a+3b)(4a-b)$